

INSTRUCTION MANUAL  
MODEL 870 70W AMPLIFIER

Serial No.

FAIRCHILD RECORDING EQUIPMENT CORPORATION  
10-40 45th Avenue, Long Island City, N.Y. 11101 IB870/769-1  
2 784-6163

## MODEL 870 70 WATT AMPLIFIER

### DESCRIPTION

The FAIRCHILD MODEL 870 power amplifier is designed to meet the need for a high quality professional monitor amplifier, capable of delivering 70 watts rms into an 8 ohm load with peak power capability to 100 watts.

Output power of 70 watts is obtained throughout the entire audio range of 20 hz to 20 KHz. Fully transistorized solid state circuit incorporates full protection against overload, short circuit or open circuit. The entire amplifier, with the exception of output transistors and the power supply section, is located on plug-in card. This allows instant access to any critical components in the unit for purposes of repair, maintenance or inspection.

The FAIRCHILD MODEL 870 amplifier features extremely low distortion, excellent transient response, flat frequency response, high input impedance, and output circuit protection.

Suggested uses for the 870 include applications in studio monitoring, sound re-enforcement and in the recording field.

### OPERATION

The FAIRCHILD MODEL 870 amplifier has a self-contained power supply. Audio signal of .8 volts across input produces 70 watts across the load. The 100K bridging input allows operation of the amplifier at any source with impedance up to 100,000 ohms. The output impedance is only a small fraction of the recommended load impedance so that damping factor of the output is extremely high and with average load exceeds 20.

When more than one speaker is connected across the output, the load impedance should not be lower than 4 ohms in order to prevent premature action of the overload protection circuit. Because voltage at the output of the amplifier is about 28 volts, it can be used as a 25 volt line for sound re-enforcement installations. Many speakers can be bridged off the output of the 870 amplifier with step-down speaker transformers between each of the speakers and the output of the power amplifier.

The design of the 870 is such that there are neither transformers nor capacitors in the output circuit. Load to the amplifier is connected directly to the output transistors. Balanced power supply eliminates the need for bulky and performance-deteriorating coupling

elements (transformers and electrolytics). Under normal operating conditions, gain control of the amplifier input is set to less than half way in order to obtain high monitoring levels.

### INSTALLATION

The MODEL 870 amplifier can be rack mounted using the FAIRCHILD 662RM rack mounting frame or similar mounting arrangement. The 662RM takes 5 1/4" of rack space. The power amplifier should be mounted so that enough air can circulate around the unit keeping the temperature of the output transistors at the ambient level. The amplifier should not be mounted close to low level circuits containing microphone transformers or wires, in order to prevent induction of AC fields generated by the power transformer into adjacent equipment. In mobile installations, it is advisable to add reinforcing struts to provide rigidity to the mounting.

### CONNECTIONS

Input wires to the 870 amplifier should be shielded. Preferably two conductor wire should be used.

TERMINAL 1	high side input
2	low side input. Shield of the input cable should be tied to the low side of Terminal 2. The other side of the shield should be left disconnected or floating.
3	output high side
4	output low side

CAUTION should be exercised in grounding. If the ground of the output circuit also happens to be common ground to the input circuit, high frequency oscillation may occur disabling the amplifier.

### OPERATING INSTRUCTIONS

Operation of the FAIRCHILD 870 amplifier is essentially the same as any other power amplifier. However, because of the efficient power supply circuit and large filtering capacitors, the amplifier will not cease to amplify after the power switch is turned off for at least several seconds. There is nothing wrong with such a long turn-off time as this indicates that there is ample amount of reserve power in the power supply to provide smooth and clean DC to the amplifier circuit.

## SPECIFICATIONS

POWER OUTPUT	70 watt rms into 8 ohms
INPUT LEVEL	.8 volts for 70 watts across 8 ohms
INPUT IMPEDANCE	100K bridging
OUTPUT IMPEDANCE	Less than 5% of load impedance
SUGGEST LOAD/IMPEDANCE	8 ohms or higher; 4 ohms minimum
FREQUENCY RESPONSE	$\pm .5$ db, 20 hz to 20 Khz
THD	Less than .4% at full power typical .2% or better
NOISE	-85 db below rated output
DAMPING FACTOR	20 or more
POWER REQUIREMENT	117 volt AC; 50 or 60 cycles at 1 amp
DIMENSIONS	13" x 6" x 4"
WEIGHT	13 1/2 lbs
CONTROLS	On-Off switch Input gain control

## WARRANTY

See standard warranty policy. To validate warranty, complete and return the warranty registration card included with this manual. If there is any question on this or any other FAIRCHILD professional product, please do not hesitate to contact our Customer Service Department, FAIRCHILD RECORDING EQUIPMENT CORPORATION, 10-40 45th Avenue, Long Island City, New York 11101.

## ATTACHMENTS

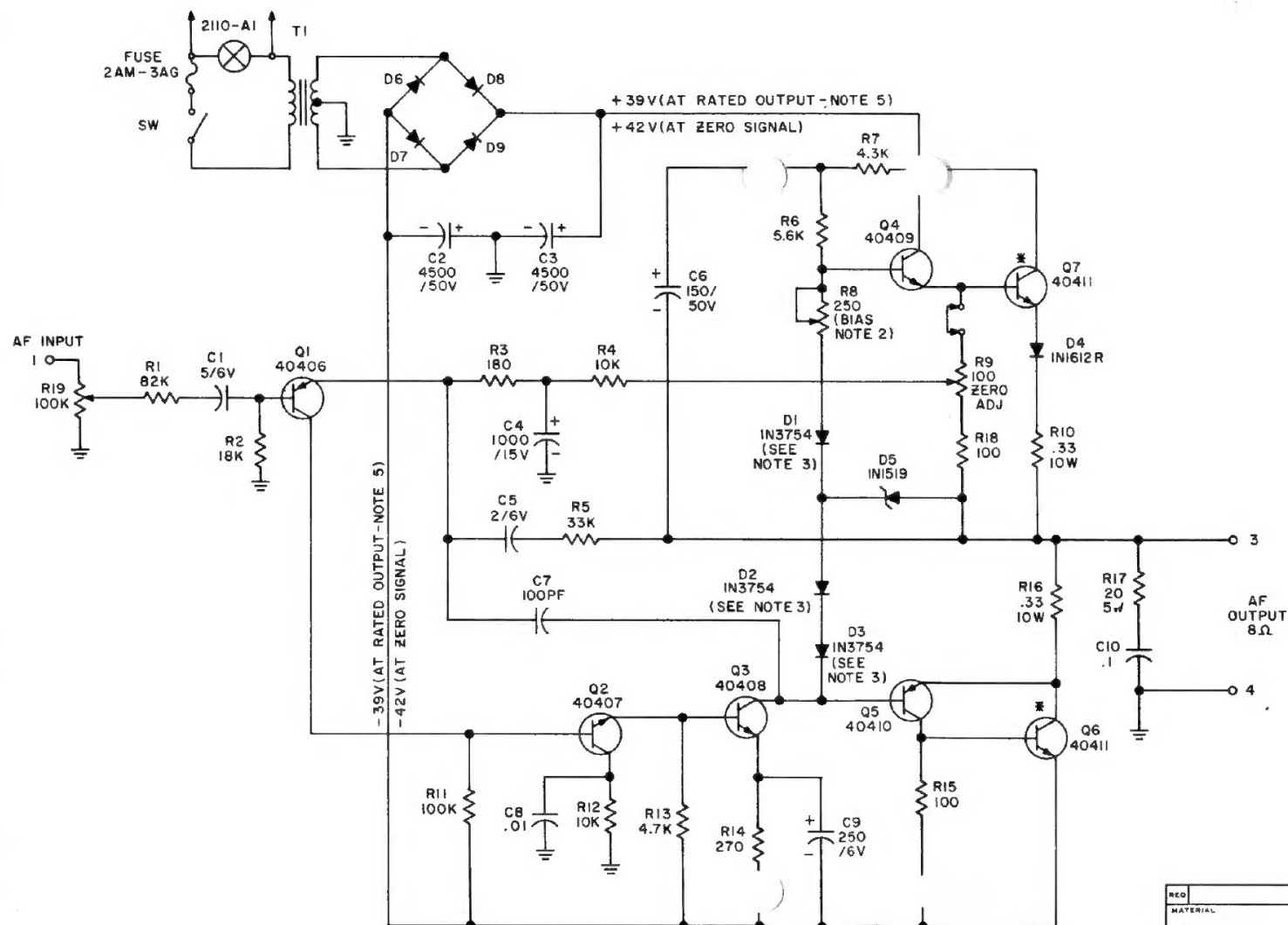
Schematic diagram 870 C96668

NOTES:

1. UNLESS OTHERWISE SPECIFIED  
ALL RESISTORS ARE IN OHMS & 1/2W.  
ALL CAPACITORS ARE IN MFD.
2. SET BIAS FOR 20 MA QUIESCENT CURRENT.
3. THERMALLY CONNECTED TO HEAT SINK FOR OUTPUT TRANSISTOR.
4. D6,D7,D8 & D9 REPLACED BY VARO RECTIFIER NO. 247.
5. FULL LOAD AT 1.5ADC.
- \*. HEAT SINK.

C-96668

ISSUE:  
1. 4/24/69



REQ	DESCRIPTION	DWG NUMBER	ITER	NEXT ASSEMBLY
MATERIAL	NAME	70W AMPLIFIER (870)		
HEAT TREATMENT		SCHEMATIC DIAGRAM		
FINISH		FAIRCHILD RECORDING EQUIPMENT CORPORATION		
10-40 45 AVE. L. I. C. I. N. Y.				
DESIGNED BY	CHKD BY	DRFTG APP	SCALE	NUMBER
END	PROJECT END	END APP		C-96668